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EXAMINER

ADE, OGER GARCIA

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/798,101	Applicant(s) KEYES ET AL.	
	Examiner GARCIA ADE	Art Unit 3687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/03/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on **02.03.2009** has been considered. Applicants amended claim 1. **Claims 1-26** are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krist et al. [US 6,038,540], and further in view of Tubel et al. [US 6,434,435].

As per claims 1 and 23, Krist discloses a system for use in a process plant [see abstract], comprising:

- a first data source including economic data related to economic factors associated with the operation of the process plant [see abstract (e.g. ***economic inputs***)];

- a second data source including process control data related to control operations within the process plant [see abstract (e.g. ***control system features an interactive optimization modeling system for determining manipulated process variables***)];

- a model that models the operation of the plant using the economic data and the process control data and that produces a model output [see paragraphs 5 and 6 of the summary section of the invention (e.g. ***output means, for transmitting command signals which include at least one manipulated parameter variable that is used to govern the physical process equipment, an adaptive controller comprising: second input means for acquiring the monetary value of at least one fluctuating economic variable***)];

- an application that uses the model output to perform a function with respect to the operation of the process plant [see paragraph 8 of the summary section of the invention (e.g. ***interactive optimization means, said real-time executive means having means for periodically transferring at least some of said input signals from said inputs means to said interactive optimization means and means for transferring at least one manipulated parameter variable from said interactive optimization means to said output means***)];

- an information server communicatively connected between the first and second data sources and the model [as illustrated in figure 7 (e.g. **block 72**)], the information server including a router [as illustrated in figure 7 (e.g. **block 74**)]; and

- wherein the first and the second data sources are adapted to automatically send the economic data and the process control data to the information server via first and second messages and wherein the router is adapted to process the first and second messages to determine that the economic data and the process control data contained within the first and second messages is to be sent to the model and to automatically deliver the economic data and the process control data to the model [see **paragraph 150** of the detailed discussion section of the invention, read as: Setpoint Output Operation Step 910, the new economic setpoints are transmitted to Process Control Computer 71. SOLO Executive Engine 820 reads and references Data Common 821 to acquire the economic setpoints and writes and transmits said setpoints to PCC write engine 826. PCC write engine 826 references and reads Data to Write to PCC 810 to define and confirm validity of logical identifiers for the setpoints, **formulates a message to be transmitted** as Write to PCS Data Vector 75, and formulates, writes, and transmits Write to PCS Data Vector 75 to Communication Interface 72. Communication Interface 72 subsequently first reads and then writes and transmits the message containing the new **economic setpoints to Process Control Computer 71 for use in control of the manufacturing system 70 in an economic manner**].

Krist discloses all elements per claimed as explained above, Krist does not explicitly disclose a scheduler adapted to coordinate delivery of information from the

first and the second data sources to the information server. However, Tubel discloses that ISO's 10A optimizer object 22 provides one of ISO's 10A communication translator objects 26 with ISO reference 52 identifying ISO 10B with which ISO 10A wishes to communicate; communication translator object 26 stores ISO reference 52 and schedules requests to retrieve the data from ISO 10B [see at least column 17: lines 35-50].

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the teaching of Tubel to the teaching of Krist in order to provide a process control optimization system having a global goal-seeking mechanism that ties a process control system together into a powerful unified system that achieves the highest optimization congruent with management objectives and goal [see disclosure of the invention].

As per claims 2 and 21, Krist discloses wherein the first data source includes economic data pertaining to a cost of a material used in the process plant [see at least column 16: lines 45-49 (e.g. *plant model 803 might use 6 nodes to abstract the process with regard to nodal characterization*)].

As per claim 3, Krist discloses wherein the first data source includes an indication of the throughput of the process plant [see at least column 4: lines 53-60 (e.g. *indicative of measured process attributes*)].

As per claim 4, Krist discloses wherein the second data source includes a field device disposed within the process plant [see at least the paragraph bridging columns 27 and 28 (e.g. **The term "sensor" also includes, as a further component, a device**

which is designated as a interactive measuring device (a transducer) which is in physical contact with the manufacturing system 70, and this general device is hereinafter considered as being incorporated into the sensor)).

As per claim 5, Krist discloses wherein the second data source includes a process controller communicatively connected to one or more field devices disposed within the process plant [see at least the paragraph bridging columns 27 and 28 (e.g. *The sensor output signal is transferred to Process Control Computer 71 through a communication method which is alternatively based on electrical, optical, or radio-frequency means*))].

As per claim 6, Krist discloses wherein the application is an optimizer application that optimizes the operation of the process plant within respect to particular criteria [see at least paragraph bridging columns 28 and 29 (e.g. *Optimizing System 73*))].

As per claim 7, Krist discloses wherein the particular criteria is one of cost or profit [see at least paragraph bridging columns 65 and 66 (e.g. *depict the profitability related to manufacturing system 70 in real-time can incorporate estimates of fixed costs, taxes, and a charge for capital*))].

As per claim 8, Krist discloses wherein the particular criteria is throughput [see at least column 68: lines 30-33 (e.g. *The resultant values can also be acquired by the actual profit sub function 818 for output to computer monitor 74*))].

As per claim 9, Krist discloses wherein the particular criteria is consumption of a particular raw material [see at least column 65: lines 45-50 (e.g. ***raw materials consumed by manufacturing system 70***)].

As per claim 10, Krist discloses wherein the application is a diagnostic application adapted to diagnose a problem within the process plant [see at least paragraph bridging column 68 and 69: lines 28-32 (e.g. ***a diagnostic functionality directed toward identification of issues related to operational variable manufacturing margin of a manufacturing process 70***)].

As per claim 11, Krist discloses wherein the diagnostic application includes an alarm generation algorithm that generates an alarm to be delivered to a user based on the model output [see at least paragraph bridging columns 34 and 35 (e.g. ***alarm function 816 within human interface engine 813***)].

As per claims 12, 14, and 19, Krist discloses wherein the application is a display application that generates a display for a user to indicate an operation of the process plant [via ***engine 813 displays profitability information to human operator 78 via a write operation to computer monitor 74***].

As per claims 13, 15-17, 20, and 24, Krist discloses wherein the model output is an economic operational parameter associated with one of a number of control loops of the process plant and wherein the display application is adapted to produce a display screen that displays the economic operational parameter associated with the one of the control loops to a user [see at least column 37: lines 26-30 (e.g. ***The theoretical profit 819 subfunction of profit measurement 817 within human interface engine 813***)].

relates to the profitability (economic efficiency) achievable given the setpoints computed in a solution cycle of the Economic Setpoints Model Solution Step 907)] ; and wherein the economic operational parameter is indicative of a product production cost of" the process plant [see at least column 16: lines 45-49 (e.g. **plant model 803 might use 6 nodes to abstract the process with regard to nodal characterization**)].

As per claims 18 and 22, Krist discloses wherein the application is a controller application that performs a control function within the process plant based on the model output [see at least the abstract (e.g. **control** and profit depiction system)].

As per claim 25, Krist discloses wherein the application is a report generating application adapted to automatically prepare and send a report based on the model output [as illustrated in figure 22 (e.g. **Note that the third manufacturing process 2206 is also treated organizationally as having the reporting status of a plant**)].

As per claim 26, Krist discloses an execution engine that executes the module during runtime of the process plant to develop the model output for delivery to the application [see summary of the invention (e.g. real-time **executive means**)].

Response to Arguments

5. Applicant's arguments with respect to **claims 1-26** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARCIA ADE whose telephone number is (571)272-5586. The examiner can normally be reached on M-F 8:30AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Gart can be reached on 571.272.3955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 3687

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/Matthew S Gart/
Supervisory Patent Examiner, Art Unit 3687

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